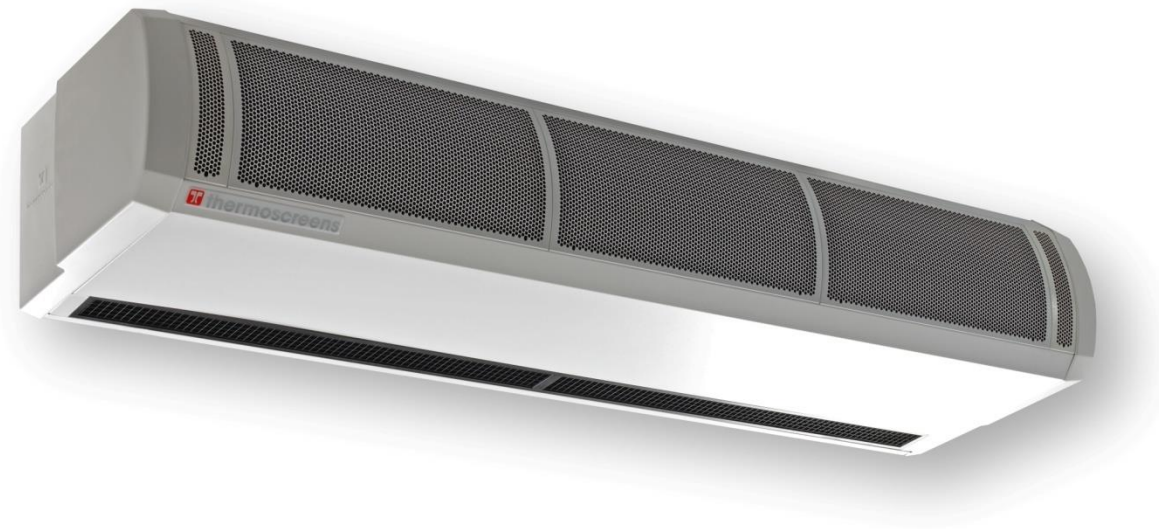


## HX Series Surface mounted



## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

**N. America**  
**English**

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## 2. IMPORTANT INSTRUCTIONS

When using electrical appliances, basic precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Read all instructions before installing or using this air curtain heater.
2. This air curtain heater can be hot when in use. To avoid burns, do not let bare skin touch hot surfaces. To avoid a fire situation keep combustible materials, such as paper, curtains, blinds, clothing, etc. at least 4 feet (1.2m) from any part of the air curtain heater; front, sides and rear and away from the warm air discharge.
3. Extreme caution is necessary when the air curtain heater is used by or near children or invalids and whenever the unit is left operating and unattended.
4. Do not operate the air curtain heater if it malfunctions. Disconnect electrical power at service panel and have unit inspected by a reputable electrician before reusing.
5. Do not install or use the air curtain heater outdoors.
6. To disconnect the air curtain heater, turn off at the remote control (see Section 16. Remote Control Operation) and turn off electrical power to air curtain heater circuit at main disconnect panel (or operate local disconnect switch if provided)
7. Do not insert or allow foreign objects to enter any air inlet or discharge opening as this may cause an electric shock or fire, or damage the air curtain heater.
8. To prevent a possible fire, do not block air inlets or discharge openings in any manner.
9. An air curtain heater has hot and arcing or sparking parts inside. Do not install and use it in areas where gasoline, paint or flammable vapors or liquids are used or stored.
10. Use this air curtain heater only as described in this instruction manual. Any other use not recommended by the manufacturer may cause fire, electric shock or injury to persons.
11. If this air curtain heater is electric heated it has an overheat safety cut-out system which will operate if temperatures at the electric heating elements get excessive and prevent the electric heating elements functioning. This is indicated by flashing LEDs on the Remote Control. If this happens refer to Section 19.1 Overheat Safety cut-out for further instructions.
12. "SAVE THESE INSTRUCTIONS"



Conforms to: CAN CSA-C22.2 no.46-13 & UL 2021(Ed.3): 2013

### 3. ELECTRICAL SAFETY

#### Electrical Supply and Wiring to the Air Curtain

All electrical wiring and connections MUST be carried out by a competent qualified electrician in accordance with the latest edition of national and local wiring regulations and/or local statutory regulations. **“Danger: Disconnect electrical supply before servicing”**

- A 1 phase or 3 phase local Disconnect, provided by others in accordance with Electrical Code and Local Electrical Codes, with a contact separation of at least 3mm (1/8in) on all poles, must be fitted in the electrical supply to the air curtain and located in an accessible position adjacent to the unit. Units with dual electrical supplies (see \* in Table below) must have a common disconnect to switch off both supplies simultaneously.
- The appliance must be connected by cables having an appropriate heat resistant temperature rating.
- All supply cables, circuit breakers and other electrical installation equipment must be correctly sized for the air curtain model being installed; see Section 4. Specifications.
- Models operating on a 480V or 600V, 3 phase electrical supply - see Section 4. Specifications, Electrical Supply \* – also need a separate 208V to 240V electrical supply to operate fan motors and controls.
- A 25mm / 1in size cable gland or conduit connector of IP21 rating or above should be used for the Electrical Supply into the air curtain.
- See Wiring Diagrams for connecting electrical supply and control cables to the air curtain. The air curtain must be grounded.

### 4. SPECIFICATIONS

Table 1

Air Curtain Model No	Electrical Supply (V/ph/Hz)	Rated Electrical Power Input (kW)	Rated Current per phase (A)	Heat Output [Low/High] (kW)	Effective Width of Airstream (m / in)	Weight (kg / lbs)
HX1000A	208...240/1/60	0.35	1.4	–	1.10 / 43	45 / 99
HX1500A	208...240/1/60	0.5	2.0	–	1.63 / 64	66 / 146
HX2000A	208...240/1/60	0.7	2.8	–	2.15 / 85	80 / 176
HX1000W	208...240/1/60	0.35	1.4	6.0 / 12.0	1.10 / 43	52 / 115
HX1500W	208...240/1/60	0.5	2.0	9.0 / 18.0	1.63 / 64	75 / 165
HX2000W	208...240/1/60	0.7	2.8	12.0 / 24.0	2.15 / 85	93 / 205
HX1000E (208V)	208/3/60	10.55	29.7	5.1 / 10.2	1.10 / 43	46 / 101
HX1500E (208V)	208/3/60	15.80	44.5	10.2 / 15.3	1.63 / 64	67 / 148
HX2000E (208V)	208/3/60	21.10	59.4	10.2 / 20.4	2.15 / 85	84 / 185
HX1000E (480V)	480/3/60 * + 208...240/1/60	12 0.35	14.5 1.4	6.0 / 12.0	1.10 / 43	46 / 101
HX1500E (480V)	480/3/60 * + 208...240/1/60	18 0.5	21.7 2.0	12.0 / 18.0	1.63 / 64	67 / 148
HX2000E (480V)	480/3/60 * + 208...240/1/60	24 0.7	28.9 2.8	12.0 / 24.0	2.15 / 85	84 / 185
HX1000E (600V)	600/3/60 * + 208...240/1/60	12 0.35	11.6 1.4	6.0 / 12.0	1.10 / 43	46 / 101
HX1500E (600V)	600/3/60 * + 208...240/1/60	18 0.5	17.3 2.0	12.0 / 18.0	1.63 / 64	67 / 148
HX2000E (600V)	600/3/60 * + 208...240/1/60	24 0.7	23.1 2.8	12.0 / 24.0	2.15 / 85	84 / 185

## 5. INTRODUCTION

Established in the 1960s, Thermoscreens is a leading air curtain manufacturer that exports to over 60 countries worldwide.

As with all our products, the HX range of air curtains is designed with energy efficiency in mind.

HX models suffixed E, W or A are designed to be surface mounted inside a building and located horizontally over a doorway.

They must not be installed on the outside of a building or built into a cabinet or recessed in any way.

“Caution: This equipment has been investigated with regard to safety from electrical fire and shock hazard only. The mechanical features have not been investigated and are subject to approval by the inspection authority having jurisdiction.”

Please complete the following details for your reference:

Date of Purchase .....  
Place of Purchase .....  
Serial Number .....

Proof of purchase is required to make a claim under warranty.



Thermoscreens Ltd  
1210 Balmoral Rd.  
Cambridge, ON N1T 1A5  
Canada

Tel: 1-877-445-3739  
Email: [warranty@carver-na.com](mailto:warranty@carver-na.com) - <http://www.thermoscreens.ca>

## 6. DELIVERY CONTENTS

The following items are supplied in the box at delivery.

**NOTE:** If any parts are missing or damaged contact your place of purchase.

### HX Surface Mounted Air Curtain



**Note:** End caps are supplied loose to be fitted during installation

### Ecopower Remote Control



Supplied with 6m / 20ft RJ Control Cable

### Wall Brackets and M10 Fixing Bolts



3 brackets for  
HX1500 & HX2000

### Door Switch



1m, 1.5m – x1  
2m – x2

### Outdoor Air Thermostat (Optional – supplied by Installer)



Used for simple weather  
compensation control  
(disables heating on a warmer day)

**NOTE:** On water heated units a 3-port water heating valve is factory fitted inside the air curtain.

## 7. TOOLS REQUIRED

The following tools are required for installation:

- Flat blade screwdrivers
- Phillips head screwdrivers
- 10mm wrench
- Adjustable wrench
- Electric drill
- Ladders
- Appropriate lifting equipment



## 8. INSTALLATION

The air curtain is designed to be located horizontally over a doorway. It must not be installed outside of the building.

### 8.1 Location

Mount the air curtain above and as close to the doorway as possible, with:

- the height of the discharge grille above floor level to be no more than as indicated in Fig 1
- at least 100mm / 4in clearance (air gap) above electric/water heated air curtains, see Fig 1

Beware of doorway top edges, structural beams, door opening/closure devices, etc., which may interfere with the air stream and affect the location of the unit.

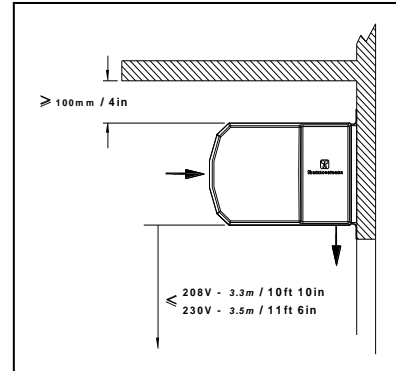


Fig 1

**NOTE:** For the air curtain to work well the width of the open doorway should be less than the effective width of the airstream, see Table 1.

### 8.2 Wall Fixing

**NOTE:** Use suitable wall fixing bolts (not supplied) to fix the unit to the wall, taking into account the type of wall and the weight of the unit (see Section 4. Specifications).

- Step 1** Bolt all wall brackets to the rear face of the unit as shown in Fig 2, using the M10 fixing bolts supplied.
- Step 2** Drill fixing points in the wall, referring to Appendix 1 for correct positioning.
- Step 3** Screw in the top wall bolts leaving a small gap between the screw head and the wall.
- Step 4** Lower the unit onto the bolts via the key-hole slots in the top of the wall brackets and screw in the bottom wall bolts.
- Step 5** Tighten all fixing bolts until the air curtain is safely secured to the wall.



Fig 2



### 8.3 Ceiling Suspension

3/8" UNC Threaded rods (not supplied) are used to suspend the unit from the ceiling.

Suspend the unit from the ceiling as follows:

**Step 1** Screw the threaded rods into all of the holes in the top face of the unit as shown in Fig 3.

**NOTE:** Do not screw hanging rods too far in as they could interfere with internal components.

**Step 2** Fit 3/8" UNC locking nuts (not provided) to prevent the rod rotating and coming away from the casing.

**Step 3** Secure each suspension rod to a suitable structure that can support the weight of the unit (see Section 4. Specifications for weights).



Fig 3

**WARNING:** It is the sole responsibility of the installer to ensure that the fixing locations and suspension system used are suitable for the air curtain being installed.

### 8.4 LPHW Models

For LPHW models ensure that water isolation valves are fitted in the flow and return pipework adjacent to the air curtain and connected correctly as shown in the diagram in Appendix 1.

For the design of the water pipework system and pump, water flow rates and pressure drops for maximum heat output of the air curtain are given in Table 2 below.

Table 2

Air Curtain	Water Flow Rate (l/min at 82/71°C / US Gall/min at 180/160°F)	Water Pressure Drop (kPa / psi / ft H <sub>2</sub> O)
HX1000W, 2-row (12kW)	15.6 / 4.1	6.8 / 0.99 / 2.3
HX1500W, 2-row (18kW)	23.4 / 6.2	13.4 / 1.94 / 4.5
HX2000W, 2-row (24kW)	31.2 / 8.2	22.6 / 3.28 / 7.5
Air Curtain	Water Flow Rate (l/min at 60/40°C / US Gall/min at 140/100°F)	Water Pressure Drop (kPa / psi / ft H <sub>2</sub> O)
HX1000W, 4-row (12kW)	8.6 / 2.3	9.6 / 1.39 / 3.2
HX1500W, 4-row (18kW)	12.9 / 3.4	10.3 / 1.49 / 3.4
HX2000W, 4-row (24kW)	17.1 / 4.5	10.5 / 1.52 / 3.5

**NOTE:** Water Pressure Drop is across the flow and return connections of the air curtain and includes for the coil and valve fitted inside the unit.  
Water flow rates and pressure drops at different water temperatures can be calculated using the Thermoscreens coil calculation programme. Visit the Thermoscreens website for details.

## 9. ACCESS FOR ELECTRICAL CONNECTION

### 9.1 How to access terminals

To gain access to the air curtain for connection and commissioning, remove air inlet grilles and bottom access panel as explained below.

First remove the plastic end caps at each end of the unit, if fitted, by pulling off to the side.

**NOTE:** All air curtain panels are protected in a plastic film. When access panels are removed this film can be removed.

#### 9.1.1 Remove air inlet grilles

Using a Philips No 1 screwdriver, remove each grill with its filter.

To remove, insert screwdriver into the elongated hole at the bottom corner of the grille (see Fig 4) and turn the screw one quarter of a turn anticlockwise.

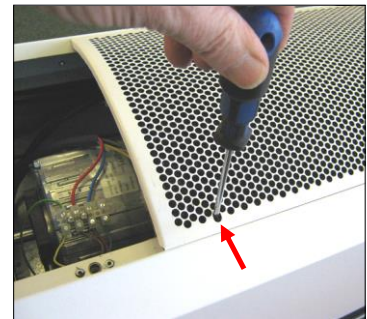


Fig 4

#### 9.1.2 Remove bottom access panel

Unfasten the securing screw at each end (see 1, Fig 5) and, if applicable, two screws in the centre (HX1500 and HX2000 units only).

To remove, slide the access panel (see 2, Fig 5) out forwards.



Fig 5

## 10. REMOTE CONTROL INSTALLATION

Mount the Ecopower remote control in a convenient position directly to the wall or onto a switch box.

### 10.1 Wall mounting

- Step 1** Using a screwdriver undo the screw on the top of the remote control case and pull the back case away (see Fig 6).
- Step 2** Feed one end of the RJ control cable through the back case, secure it, then screw the back case to the wall using suitable fixings (not supplied).
- Step 3** Connect the RJ plug to the RJ socket on the PCB in the remote control.
- Step 4** Refit the front case.

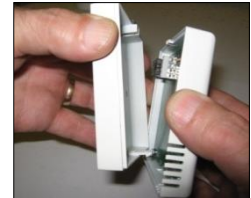


Fig 6

### 10.2 Switch box mounting

- Step 1** Using a screwdriver undo the screw on the top of the remote control case and pull the back case away (see Fig 6).
- Step 2** Feed one end of the RJ control cable through the switch box, feed and secure the RJ control cable through the back case and secure back case to switch box using 2 mounting screws (not supplied) (see Fig 7).
- Step 3** Connect the RJ plug to the RJ socket on the PCB in the remote control.
- Step 4** Refit the front case.



Fig 7

**NOTE:** For optional remote control settings see Section 11. Remote Control Settings

## 11. REMOTE CONTROL SETTINGS

On the back of the PCB inside the Ecopower Remote Control you will find four DIP switches that provide the following optional features, see Table 3:

Table 3

DIP	Feature	Explanation	Default	Notes
1	Reset on power-up	On restoring power after an electrical interruption all Remote Control settings are retained	ON	<b>WARNING!</b> – Fans start on their own after power is restored
2	Stop fan on cold	Fans are switched off when heating level is achieved (AUTO mode only)	OFF	
3	Never blow cold	Air curtain always heats in AUTO mode	OFF	Will not go to ambient mode
4	Room air temperature control	Enables the room air sensor in the Remote Control	OFF	Disables all other temperature sensors

## 12. EXTERNAL CONTROLS

### 12.1 Remote switch contacts IN0, IN1

Terminals IN0 and IN1 on the Ecopower PCB inside the air curtain can be used to provide different control strategies using remote volt-free contacts (see Fig 8). This could be to provide remote On/Off from a timer or BMS Digital/Output contact, to work with a door switch or for simple weather compensation control to disable heating when outdoor air temperatures become warmer. Table 4 describes the different functions:

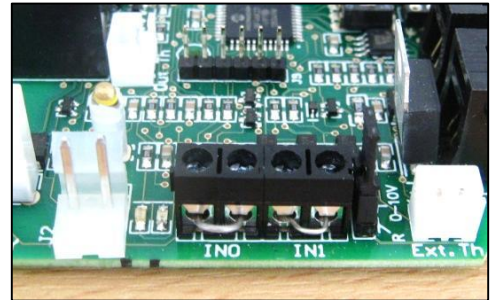








Fig 8

Table 4a

Function	IN0		Notes
			
Remote On/Off (INHIBIT) or Door Switch Control	Unit operates normally in MANUAL Mode or AUTO Mode from the Remote Control  Door Open	Unit switches off after 15s, with fan run-on at Medium fan speed if DIP 2 = OFF  Door Closed	Use the Remote Control to set up unit and then hide it away if required. *  On/Off is then done via IN0 using a remote volt-free contact.

The below functions for IN1 will only work with IN0 in a closed state ():

Table 4b

Function	IN1		DIP 4	Notes
				
Boost Heater Control	After 30s the heating is disabled and the fan goes to low speed	Unit operates normally in MANUAL Mode or AUTO Mode from the Remote Control	ON	Open Circuit:-  Normal Control  Closed Circuit:-  Heating Off Low Fan Speed
Summer Winter (Thermostatic Control)	Unit operates normally in MANUAL Mode or AUTO Mode from the Remote Control <i>COLD DAY</i>	Heating is disabled straight away, Fan speeds operate normally from the Remote Control <i>WARM DAY</i>	OFF	Simple weather compensation control using an outdoor air thermostat with volt free contacts (see Section 12.3)

**NOTE:** Wire volt-free, remote switch contacts to 2-way screw terminals IN0 and IN1 using 2-core cable.

**WARNING:** Do not apply any voltage to terminals IN0 and IN1 as this will damage the Ecopower PCB inside the air curtain.

\* **NOTE:** The Ecopower Remote Control must stay plugged-in for the air curtain to keep working. An optional plug-in EEPROM is available from Thermoscreens so the Remote Control can be unplugged and the air curtain stay working. Visit the Thermoscreens website for details.

## 12.2 Overheat safety cut-out indication

For electric heated air curtains the Ecopower PCB includes a fault indication signal for if the overheat safety cut-out on the electric heater operates.

Volt free changeover contacts (6A 250VAC 30VDC) can be wired via the 3-way screw terminal “HEALTHY” (see Fig 9).

Refer to Section 19.1 Overheat Safety cut out, for how to reset a overheat safety cut-out situation.

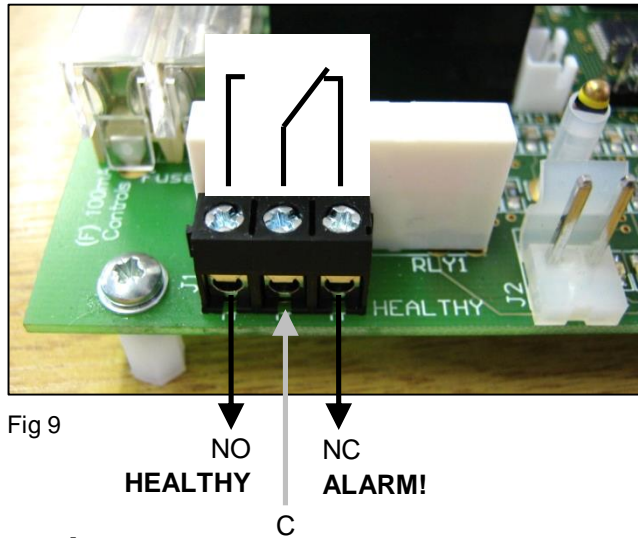


Fig 9

## 12.3 Weather compensation control

To save heating energy on warmer days a simple weather compensation (Summer/Winter) heat control strategy can be used. Fit an outdoor air thermostat with volt-free contacts (supplied by the installer) to a north facing wall.

Use a 2-core cable to connect the outdoor air thermostat to 2-way terminal IN1 on the Ecopower PCB (see Fig 10)

On the Ecopower PCB, set DIP 4 to OFF as per Table 4, (see Section 12.1 Remote switch contacts IN0, IN1).

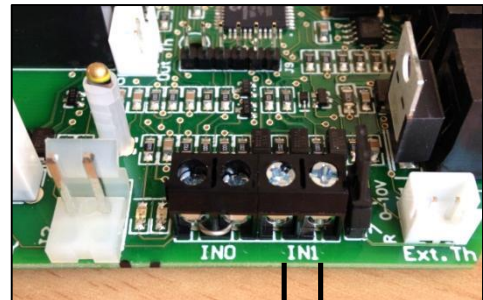


Fig 10

Switch Contact Closed = Heating Enabled (cold day)  
Switch Contact Open = Heating Disabled (warm day)



**WARNING:** Do not apply any voltage to terminal IN1 as this will damage the Ecopower PCB.

**NOTE:** To promote increased energy saving a more advanced weather compensation control strategy is available from Thermoscreens. Using a heating curve, the discharge air temperature of the airstream coming from the air curtain is controlled against the outside air temperature. Visit the Thermoscreens website for details.

## 13. MULTIPLE AIR CURTAIN SYSTEMS

For master/slave control, plug and connect units together with Thermoscreen RJ extension cables (not supplied) as per Figure 11 below. Each air curtain must have its own electrical supply.

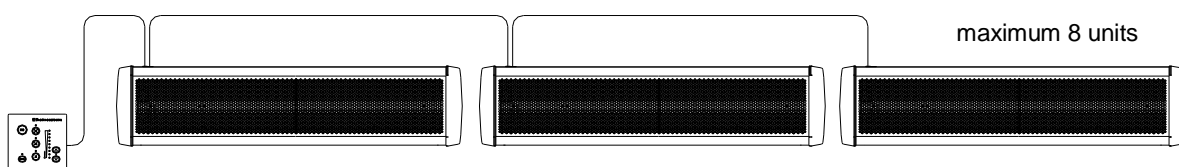


Fig 11

# 14. SYSTEM CONFIGURATION

## 14.1 Optional features

**WARNING:** Isolate and disconnect air curtain from the power source before making any changes.

DIP switches on the air curtain Ecopower PCB (see Fig 12) provide the following optional features, as explained below:

- Fan heat interlock
- Disable fan run-on
- Thermostat master (for master/slave installations)
- Weather compensation heat control (Summer/Winter)
- Door switch control



Fig 12

Feature	DIP setting	Default	Notes
<p><b>Fan heat interlock</b> Allows fan speed to govern heat output on electric heated units.</p> <p>If low or medium fan speed is selected, a lower heat output results. High heat operates only on high fan speed.</p>	<p><b>DIP 1</b></p> <p>ON</p>	<p><b>ON</b></p> <p>Heat output is governed by fan speed.</p>	<p>This feature is only used with electric heated air curtains to limit very high air temperatures.</p> <p>Set DIP1 to OFF if unit is water heated or ambient.</p>
<p><b>Disable fan run-on</b> The 2 minute fan run-on after switch off is enabled or disabled on electric heated air curtains.</p>	<p><b>DIP 2</b></p> <p>ON</p>	<p><b>OFF</b></p> <p>Fan run-on at medium speed enabled.</p>	<p>Must only be used for water heated or ambient air curtains. Each air curtain must have DIP2 set to ON for no fan run-on.</p>
<p><b>Thermostat master</b> For master/slave installations. Only the air sensor in the thermostat master air curtain is used to measure air temperature.</p> <p>Set DIP 3 to ON in the air curtain that will be the master unit.</p>	<p><b>DIP 3</b></p> <p>ON</p>	<p><b>OFF</b></p> <p>Air curtains in master/slave systems all act independently.</p>	<p>Air sensor thermistors in all slave air curtains will be ignored.</p> <p>Stops some units blowing cold air and others blowing warm air in master/slave systems on larger doorways.</p>
<p><b>Weather compensation control or Door switch control</b></p> <p>Simple weather compensation control to save heating energy.</p> <p><b>or</b></p> <p>Door switch control.</p>	<p><b>DIP 4</b></p> <p>ON</p>	<p><b>OFF</b></p> <p>IN1 Weather compensation</p> <p><b>ON</b></p> <p>IN1 Door switch</p>	<p>See section 12.1 Remote Switch Contacts IN0 and IN1 for details</p> <p>Weather compensation control is the same as Summer/Winter control</p>

**NOTE:** ■ — Black rectangle is moveable head of DIP switch.

**NOTE:** A range of advanced factory fitted and plug-in control options are available from Thermoscreens to enhance the performance of the Ecopower PCB controller inside the air curtain. These include advanced weather compensation control using a heating curve, outlet air temperature control, ECObus® Modbus BMS control, modulating heater outputs and EEPROMs for non-standard control strategies. Visit the Thermoscreens website for details.

## 15. FAN SPEED SELECTION

Factory settings for the 3 fan speeds are shown in Table 5 and 6 below:

**Fan running on 208V (refer to wiring diagrams in Appendix 2)**

Table 5

Fan Speed (air curtain as delivered)	Motor Speed Tapping	Maximum air curtain mounting height (m / ft)	Sound Pressure Level of air curtain [dB(A) at 3m/10ft]	Air Volume Flow Rate (m <sup>3</sup> /h / cfm)
<b>HIGH</b> (black wire)	1 (highest speed) <i>air velocity at discharge is 8.7 m/s / 1700 ft/min</i>	3.3 / 10ft 10in	HX1000 - 57 HX1500 - 58 HX2000 - 58	1375 / 810 1980 / 1165 2480 / 1460
<b>MEDIUM</b> (blue wire)	2	2.9 / 9ft 6in	HX1000 - 55 HX1500 - 56 HX2000 - 56	1190 / 700 1820 / 1070 2165 / 1275
<b>LOW</b> (red wire)	3	2.2 / 7ft 3in	HX1000 - 50 HX1500 - 52 HX2000 - 52	1000 / 590 1630 / 960 1820 / 1070

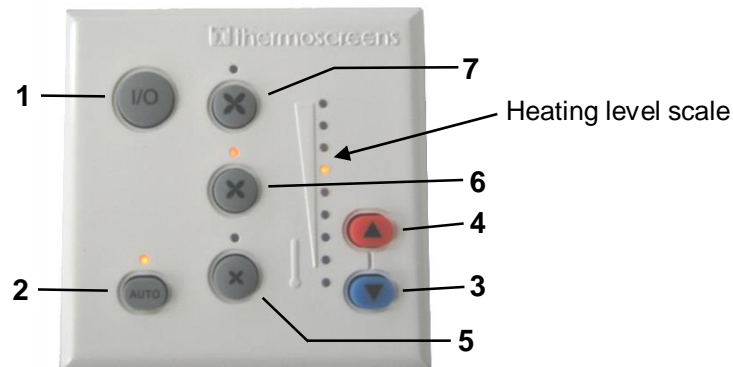
**Fan running on 230V (refer to wiring diagrams in Appendix 2)**

Table 6

Fan Speed (air curtain as delivered)	Motor Speed Tapping	Maximum air curtain mounting height (m / ft)	Sound Pressure Level of air curtain [dB(A) at 3m/10ft]	Air Volume Flow Rate (m <sup>3</sup> /h / cfm)
<b>HIGH</b> (black wire)	1 (highest speed) <i>air velocity at discharge is 9.4 m/s / 1850 ft/min</i>	3.5 / 11ft 6in	HX1000 - 58 HX1500 - 60 HX2000 - 60	1500 / 885 2160 / 1270 2660 / 1565
<b>MEDIUM</b> (blue wire)	2	3.1 / 10ft 2in	HX1000 - 56 HX1500 - 58 HX2000 - 58	1350 / 795 1990 / 1170 2420 / 1425
<b>LOW</b> (red wire)	3	2.4 / 7ft 10in	HX1000 - 53 HX1500 - 56 HX2000 - 56	1160 / 685 1830 / 1080 2120 / 1250

Sound pressure levels dB(A) at 3m/10ft distance are for a single air curtain mounted at its maximum mounting height, operating in a room with average acoustic characteristics as defined in CIBSE Guide B5 (reverberation time 0.7s at 1kHz) and a room size equivalent to 8 air changes per hour (ac/h). Care needs to be taken when selecting air curtains for an installation as noise levels can be several dB higher if the mounting height is reduced, if the room is more 'live' (i.e. hard surfaces, no furnishings or absorbent materials), if the room is smaller than 8 ac/h equivalent or a combination of these factors. Noise levels will also increase if more than one air curtain is installed at the same doorway (e.g. +3dB(A) for 2 equal point sources: direct field).

## 16. REMOTE CONTROL OPERATION



Use the Remote Control to operate the air curtain as follows:

### 1 On/Off

Turns the air curtain On or Off.

**NOTE:** If an electric heated air curtain is heating when switched off the fan will run-on for approximately 2 minutes to dissipate excess heat.

**NOTE:** Do not switch the unit off at the electrical power disconnect as this may cause the overheat safety cut-out system to function on electric heated units, only switch off using the remote control so the fan will run-on if the air curtain has been heating.

### 2 Manual/Automatic

Switches between Manual and Automatic modes.

The Auto On indicator LED is lit for "Auto Mode" and unlit for "Manual Mode".

### 3 & 4 Heating level controls

#### Manual mode

Select heating level from zero, to half heat, to full heat by stepping up or down with the heating level controls. The heating level scale shows the level selected.

#### Automatic mode

Heat output is controlled automatically according to:

- Inlet air temperature, or
- Room air temperature

This is dependent on the settings made in Section 11. Remote Control Settings (DIP switch 4).

### 5, 6 & 7 Fan speed

Switch fan speed between Low, Medium and High respectively. The appropriate LED illuminates.

**NOTE:** On HX A (Ambient – non heated) units the LED indicators on the Heating level scale and AUTO button still illuminate but are ignored as nothing happens in the air curtain.



## 17. COMMISSIONING THE SYSTEM

### 17.1 Verify system operation

To commission the system, verify the following conditions are met:

- All fans are working.
- Fans operate at Low, Medium and High speeds.
- There is no excessive mechanical noise coming from the fans.
- When heating is selected, the air stream from the discharge grille warms up across the whole length of the air curtain.
- When set to manual with fans set to high speed, heating increases as higher heat is selected.
- Warm air reaches across the doorway with door open or closed.
- Ecopower Remote Control operates correctly in both manual and auto modes.

### 17.2 Instruct customer and hand over

Before leaving site, hand over the installation to the customer/end user or their representative.

**Explain** that any person operating the air curtain must be given supervision and instruction by the person responsible for their safety, concerning the safe use of the unit and to understand any hazards involved. Children and those with reduced physical, sensory or mental capabilities should not operate the air curtain.

**Recommend** that the doorway should be closed whenever possible but that during times of high pedestrian use it will become an 'open doorway'. The air curtain then serves an essential purpose by saving energy and providing comfort to occupants.

**Explain** that the inlet grilles and air filters (if fitted) must be cleaned regularly and the unit serviced at schedule intervals – see Section 20. Service & Maintenance.

**NOTE:** Leave these instructions with the customer/end user or their representative!!

## 18. SIGN OFF

Complete the following once commissioning is completed.

<b>Installer signature</b>		<b>Customer signature</b>	
<b>Installer name</b>		<b>Customer name</b>	
<b>Installer company</b>		<b>Customer company</b>	
<b>Date</b>		<b>Date</b>	

## 19. FAULT CONDITIONS

### 19.1 Overheat Safety cut-out

An overheat fault in electric heated units may cause the overheat safety cut-out(s) to operate. They may also operate if the air curtain is turned off at the electrical disconnect or during power outage if the heating elements are working at the time. Only turn off the air curtain using the remote control, see Section 16. Remote Control Operation.

This is indicated by flashing LEDs on the Remote Control and a red status LED on the Ecopower PCB inside the air curtain.

Before resetting ensure there is adequate air flow from the air curtain, air inlets are not blocked, air filters are clean and the unit has been commissioned as per Section 17.

To reset a overheat safety cut-out:

- Step 1** Switch off the electrical supply to the air curtain.
- Step 2** Allow time for the air curtain to cool down, typically 10 minutes.
- Step 3** Switch on the electrical supply to the air curtain.
- Step 4** Press the Auto button on the Ecopower remote control 4 times.

Air curtain heaters will then operate and after 30 seconds the LEDs on the remote control will stop flashing and the status LED on the Ecopower PCB in the air curtain will flash green.

Do not reset more than 3 times. If this should happen do not reset again but have unit inspected by a reputable electrician.

### 19.2 Fuses

In the event of an electrical fault internal electrical fuses may operate.

There are two 6.3A(T) internal fuses located in two DIN-rail fused terminals inside the air curtain

There are also two internal fuses located on the Ecopower PCB inside the air curtain:

- Fuse 6.3A(T) supplies the fan motors within the air curtain
- Fuse 100mA(F) controls the circuitry of the Ecopower PCB

### 19.3 Ecopower PCB status indication

There is a status LED on the Ecopower PCB inside the air curtain (See LED shown on Wiring Diagrams in the Appendix).

This indicates the status of the Ecopower Control system as follows:

1. LED flashing green – operation normal
2. LED flashing red – low supply voltage, remote control not plugged in or RJ cable fault
3. LED permanently red – overheat safety cut-out(s) open circuit from an overheat situation.  
Indicators on Ecopower Remote Control also flash!  
(see Section 19.1: Fault Conditions for how to reset)

## 20. SERVICE & MAINTENANCE

**WARNING:** Failure to adequately maintain the unit and provide a suitable cleaning schedule will result in a loss of performance and reduced life expectancy of the air-curtain and possible overheating and fire risk with electric heated units.

### 20.1 Every week

**NOTE:** Weekly maintenance can be carried out by the Cleaner or Janitor from floor level.

Turn off the air curtain to prevent entry of dust then clean the face of the air inlet grilles and air filters inside the grilles using a vacuum cleaner with an extension tube and brush.

### 20.2 Every 3 months

**WARNING:** Before servicing, isolate and disconnect the air curtain from the electrical power.

**WARNING:** The following servicing and maintenance must be carried out by a competent electrician or a Thermoscreens appointed technician.

Clean and inspect the inside of the air curtain as follows:

- Step 1** Remove plastic end caps at each end of the unit by pulling off to the side.
- Step 2** Use a Philips No.1 screwdriver to remove air inlet grilles by releasing the quarter-turn fasteners at the bottom corners of each air inlet grille. See Fig 4, Section 9.1.1.
- Step 3** Clean and remove any build-up of dust and dirt within the air-curtain (inlet/outlet grilles, fan impellers, housings and motors) using a vacuum cleaner and soft brush.

**NOTE:** Build-up of dirt on fan impellers can cause vibration, noise and excessive wear on the motor bearings.

- Step 4** Check within the unit to ensure all electrical connections and crimped terminals are tight and that all cables are in good condition.
- Step 5** On electric heated air curtains remove the fan deck(s) as follows to inspect electric heaters, electrical wiring and connections and to remove dust, dirt and debris:
- Unclip the fan motor electrical connector.
  - Unfasten 4 x M6 nuts/bolts on each fan deck.
  - Unfasten M4 screws at bottom edge of fan deck.
  - Carefully lift the fan deck away from the air curtain.

Refit fan deck(s) and air inlet grilles after servicing. Reconnect electrical supply and test to ensure correct operation (see Section 17. Commissioning).

## 21. WARRANTY

All units are covered by a two year warranty.

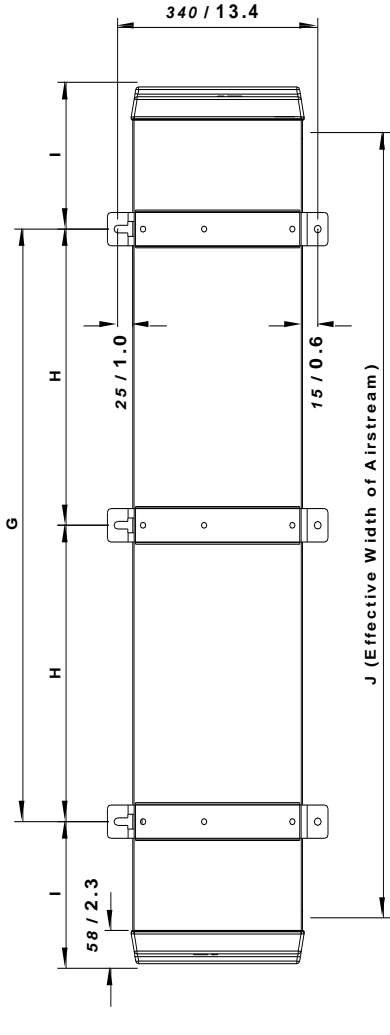
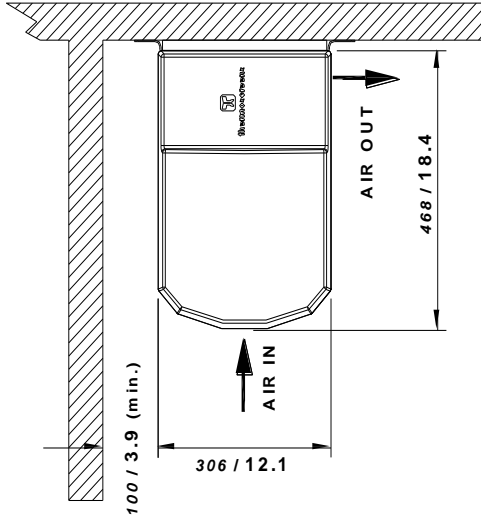
Failure to adequately maintain the unit may void the warranty. If any problems are encountered, please contact your installer/supplier.

Failing this please contact Thermoscreens Canada.

Care has been taken in compiling these instructions to ensure they are correct. Thermoscreens Canada disclaims all liability for damage resulting from any inaccuracies and/or deficiencies in this documentation. Thermoscreens Canada retain the right to change the specifications stated in these instructions.

Thermoscreens Ltd  
1210 Balmoral Rd.  
Cambridge, ON N1T 1A5  
Canada

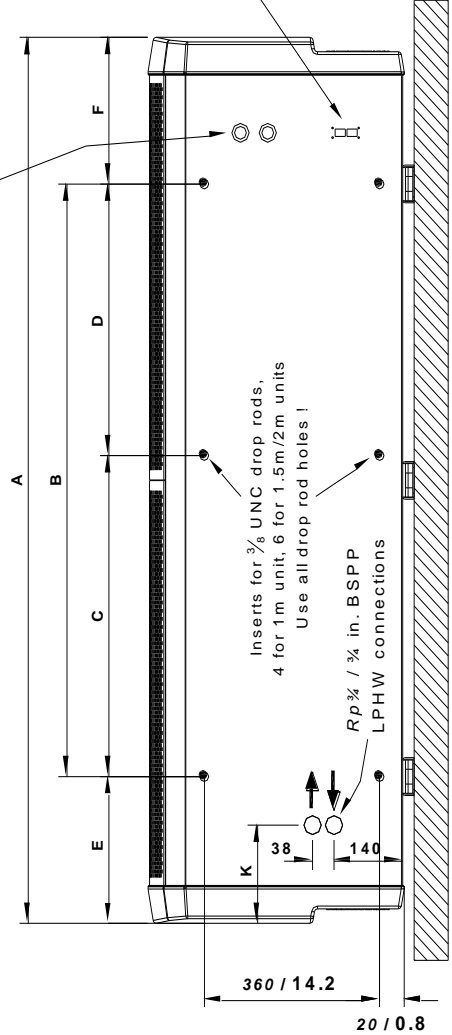
Tel: 1-877-445-3739  
Email: [warranty@carver-na.com](mailto:warranty@carver-na.com) - <http://www.thermoscreens.ca>



mm / inch

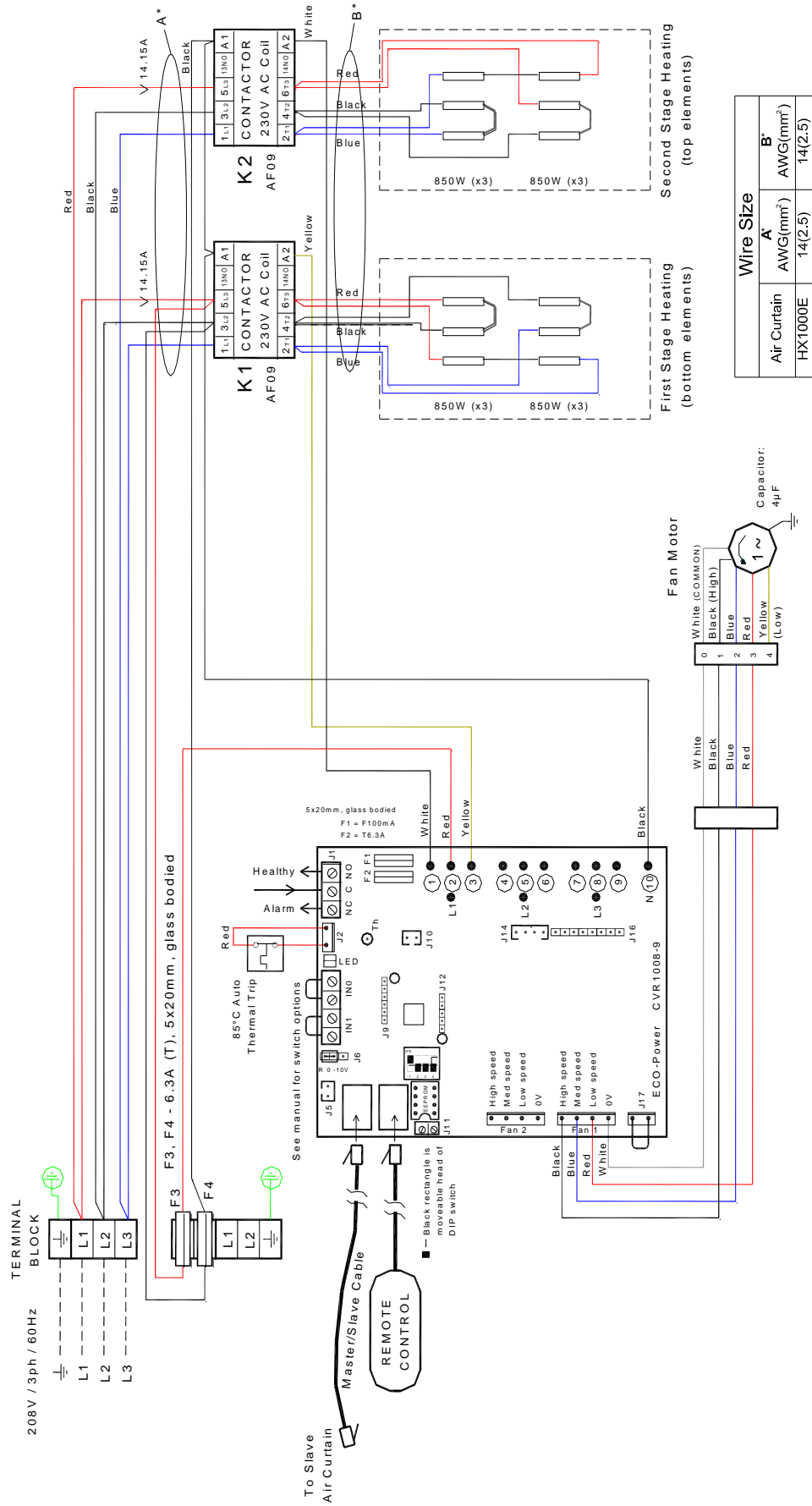
Entry points for electrical supply and controls

Remote control connection interface



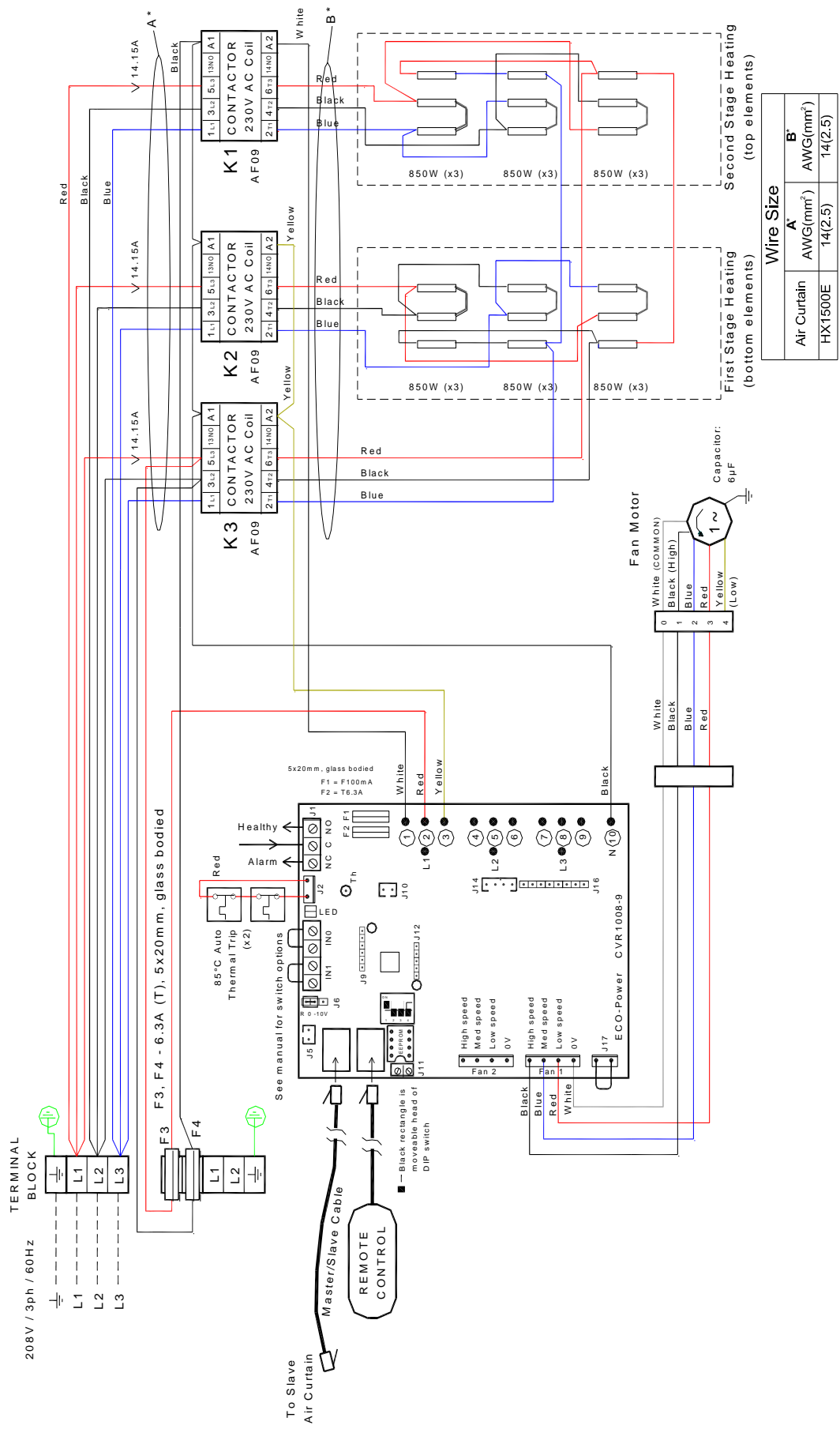
	HX1000	HX1500	HX2000
A	1300 / 51.2	1825 / 71.9	2350 / 92.5
B	895 / 35.2	1430 / 56.3	2005 / 78.9
C	-	720 / 28.4	1032 / 40.6
D	-	710 / 28.0	973 / 38.3
E	202 / 8.0	197 / 7.8	143 / 5.6
F	202 / 8.0	197 / 7.8	202 / 8.0
G	898 / 35.4	1398 / 55.0	1904 / 75.0
H	-	699 / 27.5	952 / 37.5
I	201 / 7.9	213 / 8.4	223 / 8.8
J	1100 / 43.3	1630 / 64.2	2150 / 84.7
K	184 / 7.2	220 / 8.7	167 / 6.6

# APPENDIX 1 — Dimensions of HX Surface Mounted Air Curtain



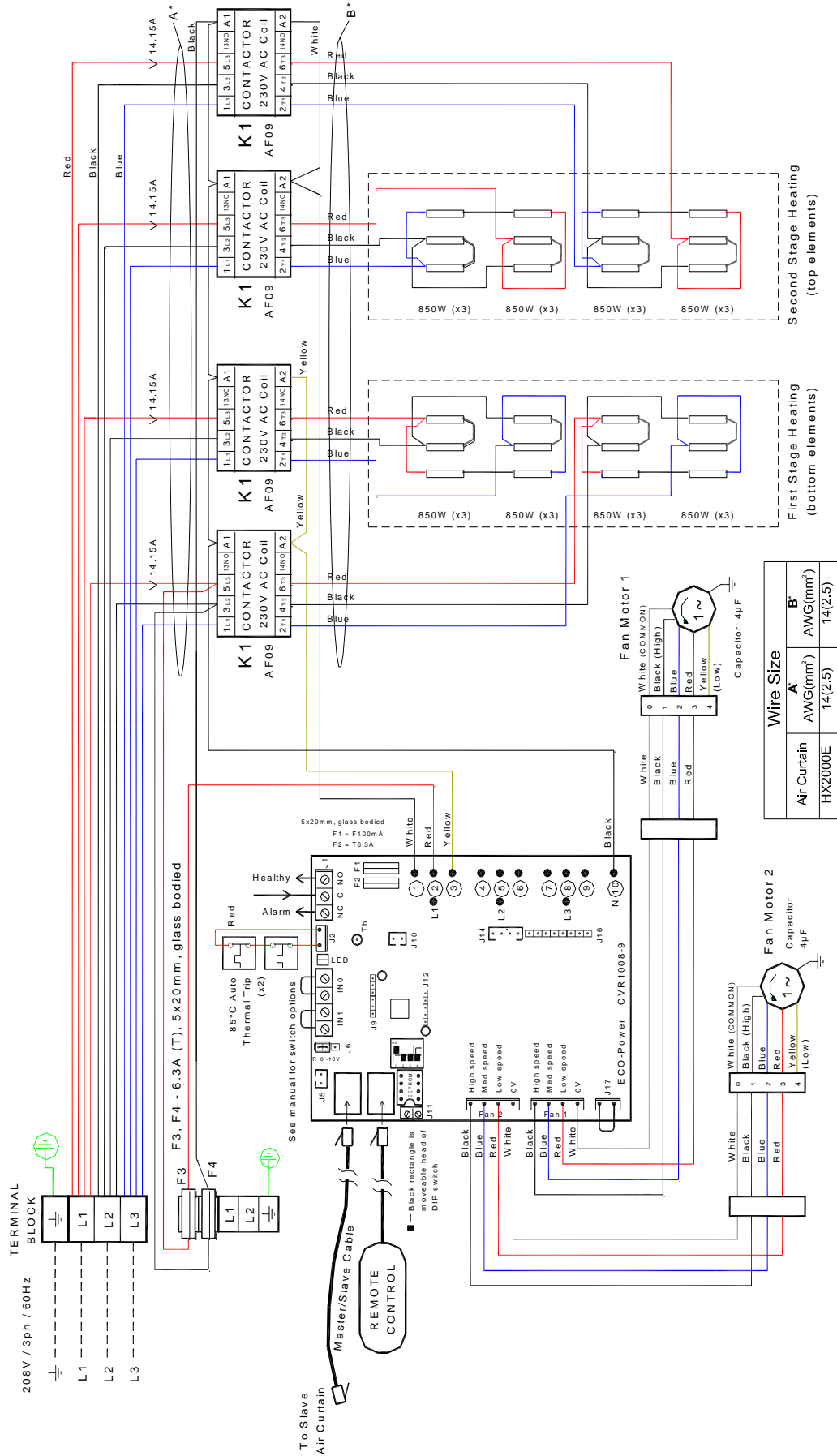
Wire Size	
A	B
Air Curtain	AWG(mm <sup>2</sup> )
HX1000E	14(2.5) 14(2.5)

# APPENDIX 2A — WIRING DIAGRAM HX1000E 208V



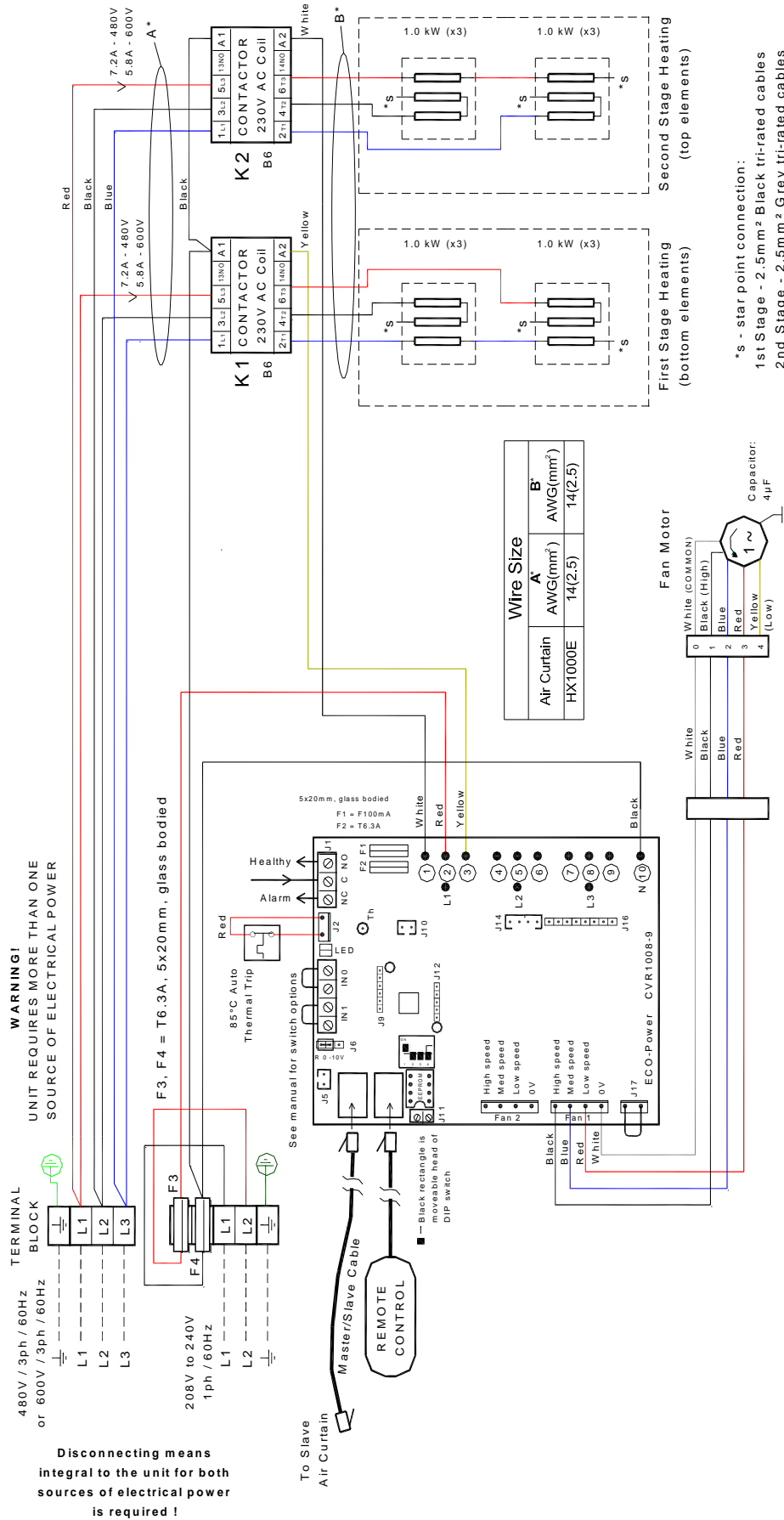
Wire Size	
A	B
Air Curtain	
HX1500E	
AWG(mm <sup>2</sup> )	AWG(mm <sup>2</sup> )
14(2.5)	14(2.5)

APPENDIX 2B — WIRING DIAGRAM HX1500E 208V

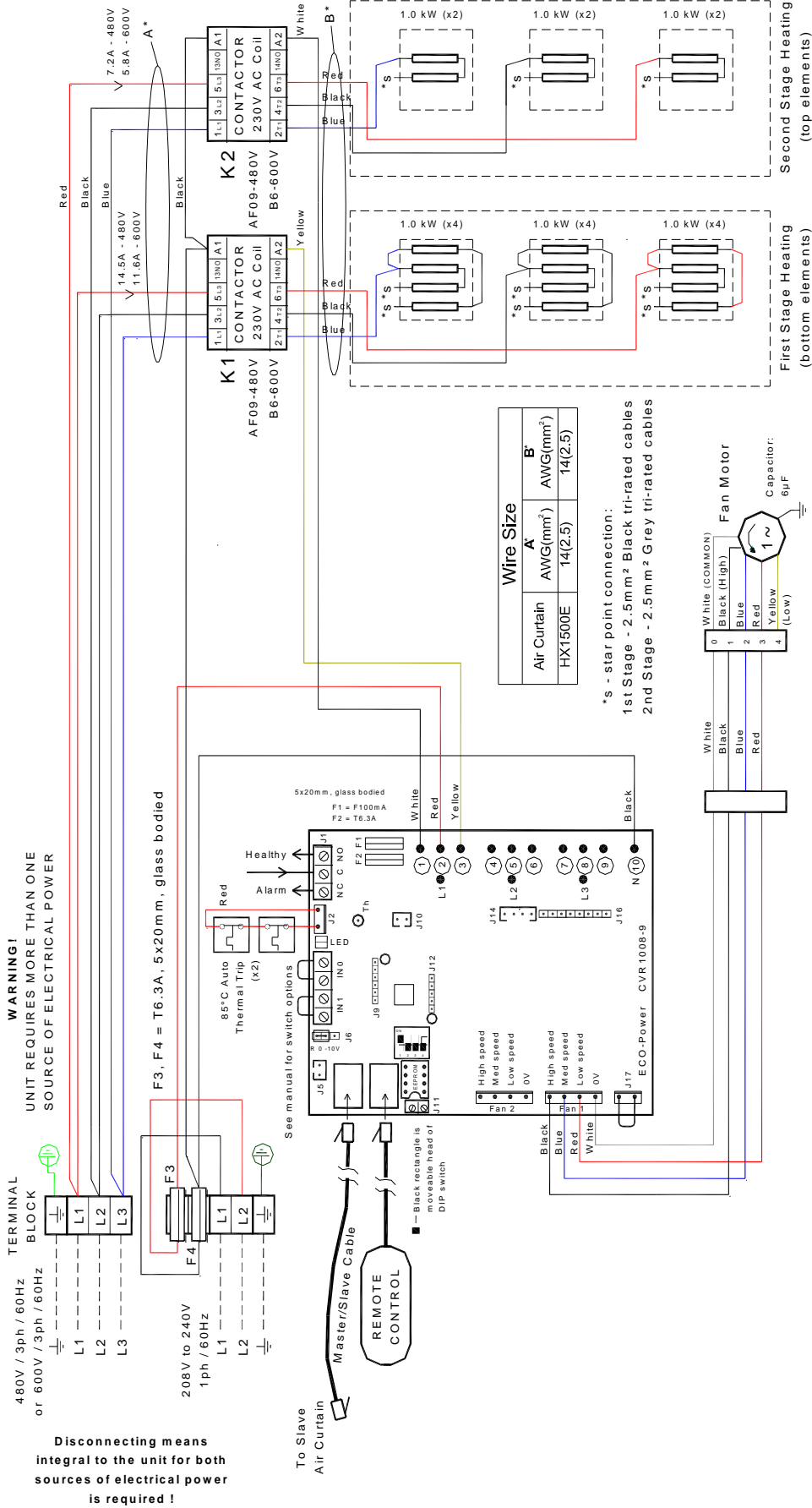


APPENDIX 2C — WIRING DIAGRAM HX2000E 208V

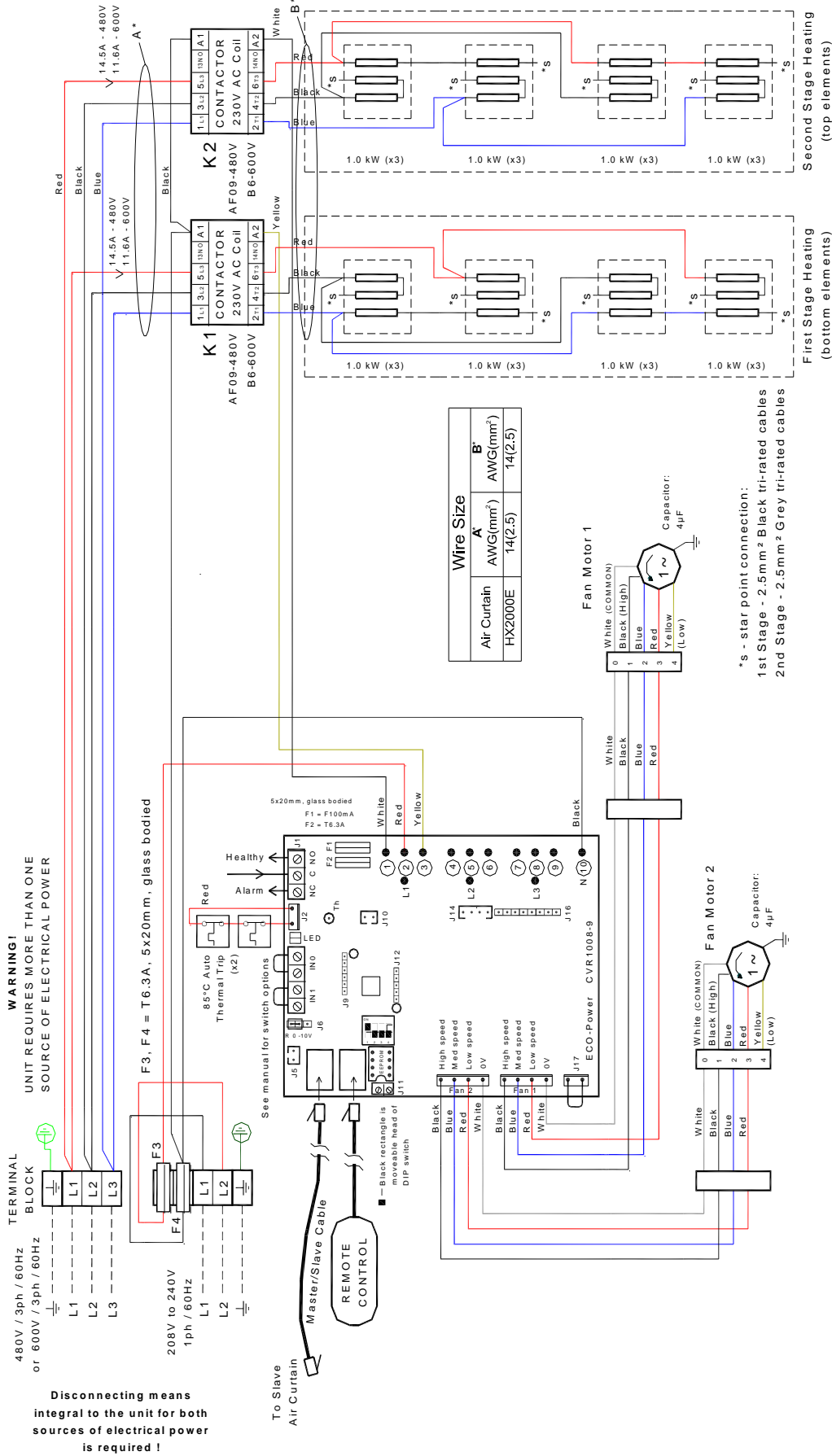




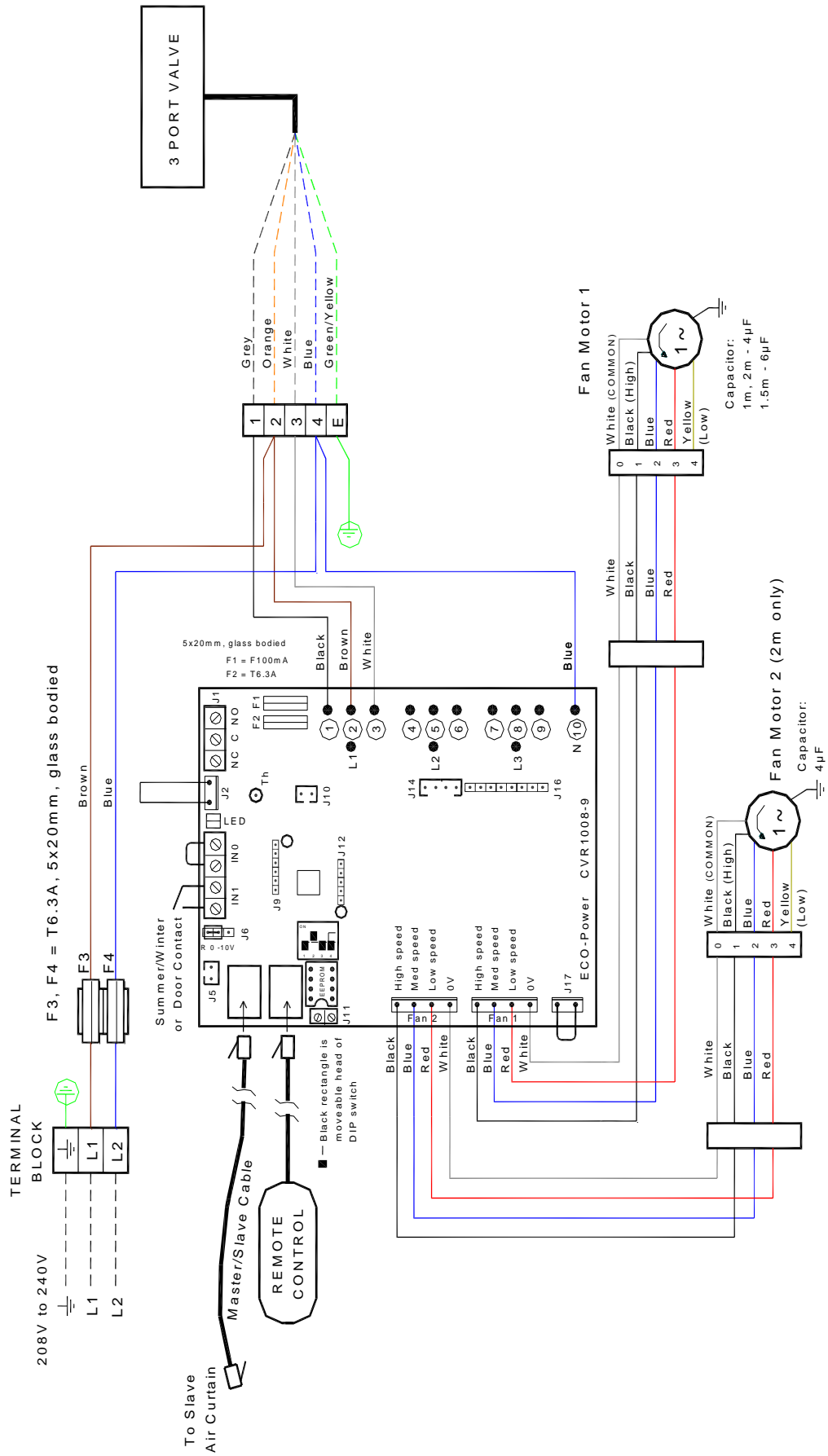
APPENDIX 2D — WIRING DIAGRAM HX1000E 480V or 600V



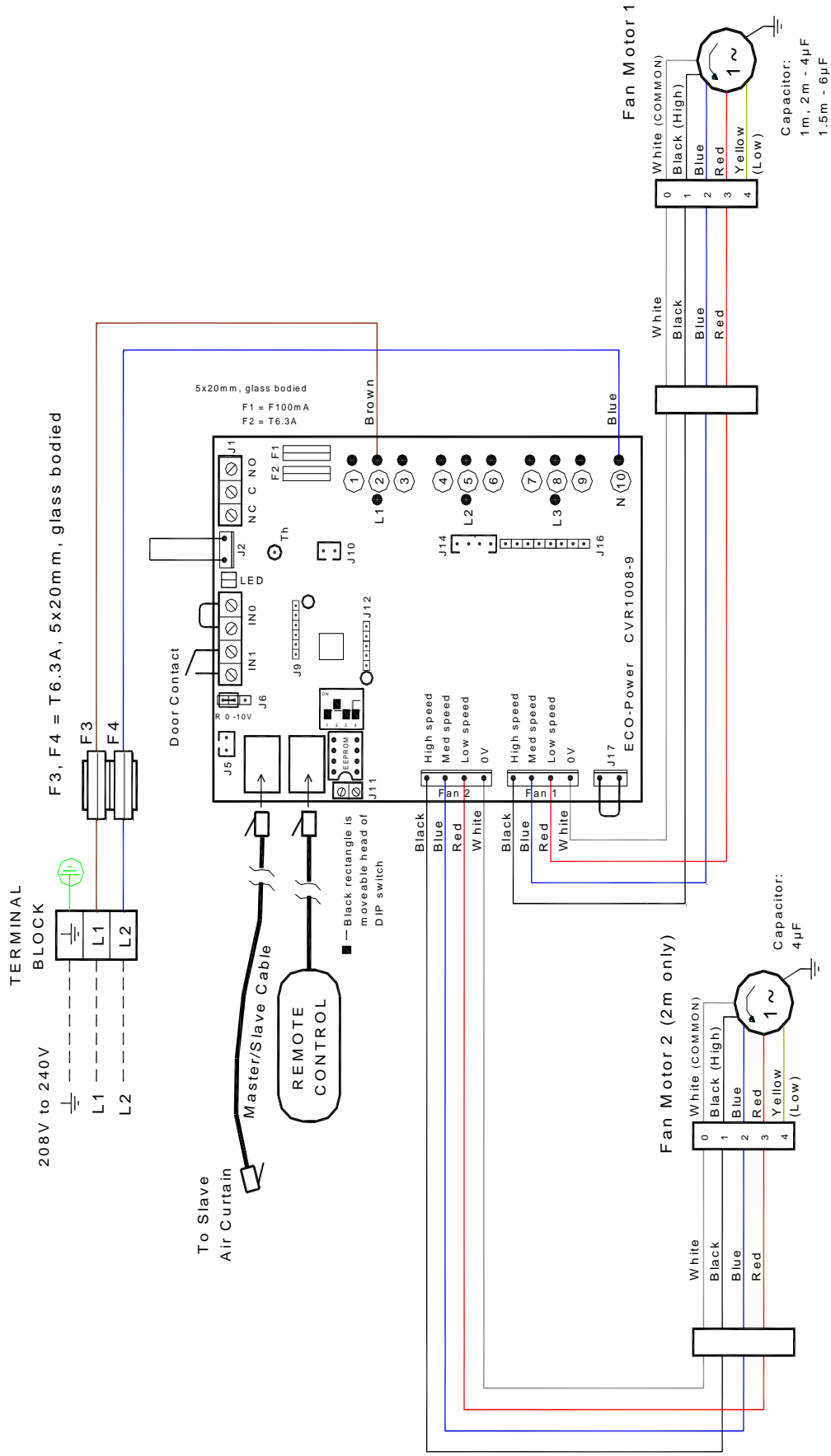
# APPENDIX 2E — WIRING DIAGRAM HX1500E 480V or 600V



# APPENDIX 2F — WIRING DIAGRAM HX2000E 480V or 600V



**APPENDIX 2G — WIRING DIAGRAM HX1000W, HX1500W and HX2000W**



**APPENDIX 2H — WIRING DIAGRAM HX1000A, HX1500A and HX2000A**